WHAT IS CLAIMED IS:

1. An optical throughput condenser comprising:

a transmissive substrate

an angle gate created via a thin film dielectric coating deposited on the transmissive substrate such that light striking the coated surface with a range of gate angles less than or equal to the gate angle transmits through the thin film, while light striking the coated surface with a range of gate angles greater than the gate angle reflects back from the thin film; and

an integrating sphere positioned such that light reflecting back from the thin film is directed towards the integrating sphere so that the light is subsequently redirected towards the angle gate.

2. The optical throughput condenser of claim 1, wherein the angle gate is defined by an angle of incidence of the thin film.

3. The optical throughput condenser of claim 1, wherein the thin film has a sharp angularly dependent transmission.

4. The optical throughput condenser of claim 1, and further comprising:

a final product of light equaling all light striking the thin film within the angle gate and transmitted through the thin film.

5. The optical throughput condenser of claim 1, and further comprising:

a plurality of micro retro reflectors positioned on a portion of the integrating sphere.

6. The optical throughput condenser of claim 5, wherein the plurality of micro retro reflectors are positioned on the portion of the integrating sphere to substantially reverse an incident ray direction of the light reflected back from the thin film.

7. The optical throughput condenser of claim 1, and further comprising:
an illuminating source positioned within the integrating sphere.

8. The optical throughput condenser of claim 1, and further comprising:
a first illuminating source positioned outside of the integrating sphere; and
a second illuminating source positioned within the integrating sphere.

9. An optical illumination system comprising:
an illuminating source providing a range of angles;
a transmissive substrate
an angle gate created via a thin film dielectric coating deposited on the transmissive substrate such that light striking the coated surface with a range of gate angles less than or equal to the gate angle transmits through the thin film, while light striking the coated surface with a range of gate angles greater than the gate angle reflects back from the thin film;
an integrating sphere positioned such that light reflecting back from the thin film is directed towards the integrating sphere so that the light is subsequently redirected towards the angle gate; and
wherein the portion of light directed towards the integrating sphere is redirected towards the angle gate.

10. The optical illumination system of claim 9, and further comprising:
a final product of light equaling all light angles striking the thin film within the range of gate angles and transmitted through the thin film.

11. The optical illumination system of claim 9, and further comprising:
a plurality of micro retro reflectors positioned on a portion of the integrating sphere.

12. The optical illumination system of claim 11, wherein the plurality of micro retro reflectors are positioned on the portion of the integrating sphere to substantially reverse an incident ray direction of the portion of light reflected back from the thin film.

13. The optical illumination system of claim 9, wherein the illuminating source is positioned within the integrating sphere.

14. The optical illumination system of claim 9, and further comprising:

at least one additional illuminating source positioned within the integrating sphere; and

wherein the first illuminating source is positioned outside of the integrating sphere.

15. A method of re-concentrating light within an optical illumination system, comprising:

transmitting a series of light angles from an illuminating source;

directing the series of light angles towards a thin film such that a first portion of light is transmitted through an angle gate of the thin film and a second portion of light reflects back from the thin film;

redirecting the second portion of light towards the angle gate;

generating a final product of light equaling all light portions transmitted through the angle gate; and

wherein the total amount of power concentrated in the $A\Omega$ product of light is greater than in an original $A\Omega$ product.